

IMAGES IN INTERVENTION

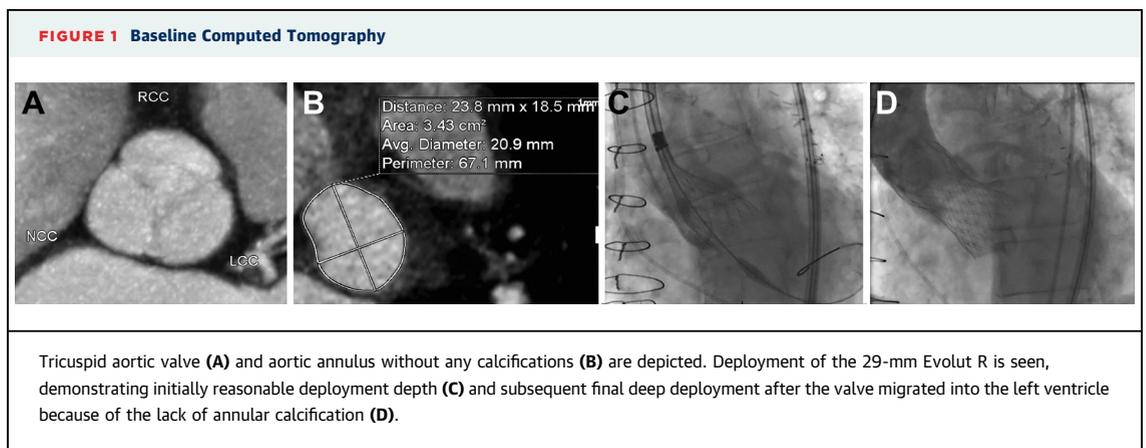
# Percutaneous Repair of Left Ventricular Wire Perforation Complicating Transcatheter Aortic Valve Replacement for Aortic Regurgitation



Jason Foerst, MD

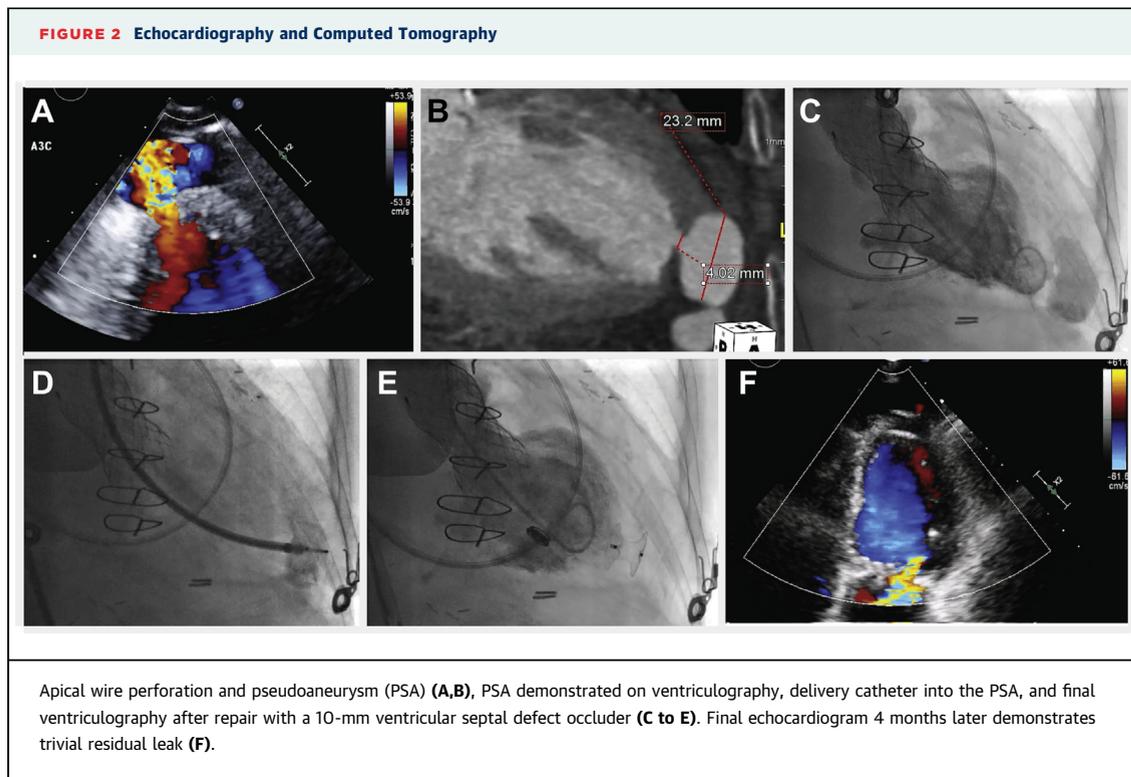
A 74-year-old woman with severe aortic regurgitation, moderate mitral regurgitation, coronary artery disease status post bypass with left internal mammary artery to the left anterior descending coronary artery, and severe emphysema was deemed inoperable for open aortic valve replacement and underwent elective transcatheter aortic valve replacement. Because of the lack of annular calcium, the recapturable 29-mm Evolut R (Medtronic, Minneapolis, Minnesota) was chosen. We had considerable difficulty landing the valve because of movement from the aortic regurgitation without calcium in the annulus. After release, the valve migrated considerably into the left ventricle, with a mild

residual paravalvular leak (Figure 1). The follow-up echocardiogram was notable for a new left ventricular apical perforation with pseudoaneurysm (PSA) (Figure 2A). The perforation was presumed to be from the motion of the delivery system delivered over a shaped Lunderquist wire (Cook Medical, Bloomington, Indiana). The PSA enlarged over the following 2 days, so given the patient's prohibitive surgical risk, we decided to treat percutaneously. An 8-F Torqueview guide (St. Jude Medical, Minneapolis, Minnesota) was advanced to the left ventricle over a J wire that was directed into the left ventricular PSA. An injection was performed demonstrating the neck of the PSA. A 5-F



From the Section of Cardiology, Virginia Tech Carilion School of Medicine, Roanoke, Virginia. Dr. Foerst is a consultant for Medtronic; and a member of the Speakers Bureaus for Edwards Lifesciences and St. Jude Medical.

Manuscript received March 7, 2016; revised manuscript received April 18, 2016, accepted April 21, 2016.



multipurpose catheter was advanced through the Torqueview over the J wire into the PSA, and the delivery catheter was advanced over the multipurpose catheter. The multipurpose catheter and wire were removed, and a 10-mm Amplatzer muscular ventricular septal defect occluder (St. Jude Medical, Minneapolis, Minnesota) was deployed. There was a trivial residual leak. At 4-month follow-up, the patient's dyspnea was improved and the PSA space stable, with a small residual color jet on echocardiography (Figure 2).

There are several reports of closure devices being used for left ventricular PSA following myocardial infarction and failed transapical closures, but this is the first report of repair of wire perforation following transcatheter aortic valve replacement (1,2).

**REPRINT REQUESTS AND CORRESPONDENCE:** Dr. Jason Foerst, Virginia Tech Carilion School of Medicine, 2001 Crystal Springs Avenue, Roanoke, Virginia 24014. E-mail: [jrfoerst@carilionclinic.org](mailto:jrfoerst@carilionclinic.org).

## REFERENCES

1. Matsumoto T, Okuyama K, Cheng W, et al. Transseptal closure of left ventricular pseudoaneurysm post-transapical transcatheter aortic valve replacement. *J Am Coll Cardiol Intv* 2014;7:e177-8.
2. Dudy Y, Jelin V, Einhorn B, et al. Percutaneous closure of left ventricular pseudoaneurysm. *Circ Cardiovasc Interv* 2011;4:322-6.

**KEY WORDS** left ventricle, pseudoaneurysm, TAVR